

Im2u2m
1903/04

INDIANA UNIVERSITY BULLETIN



MEDICAL SCHOOL NUMBER

1903-4

TABLE OF CONTENTS

	Page
CALENDAR, 1904-1905	8
TRUSTEES	8
FACULTY OF THE SCHOOL OF MEDICINE	9
MEDICAL SCHOOLS IN THE UNITED STATES	1
INDIANA UNIVERSITY SCHOOL OF MEDICINE:	
Requirements for Admission	11
Outline of Courses of Study	13
Degrees	14
Enrollment	15
Fees	15
Advanced Standing	15
COURSES OF STUDY IN THE SCHOOL OF MEDICINE:	
Anatomy	17
Physiology	25
Neurology	27
Embryology	29
Chemistry	31
Bacteriology	33
ENROLLMENT IN THE SCHOOL OF MEDICINE, 1903-1904	36

Entered July 23, 1903, at Bloomington, Indiana, as second-class matter, under act of Congress of July 16, 1894.

INDIANA UNIVERSITY BULLETIN

VOL. II BLOOMINGTON, IND., SEPTEMBER, 1904 NO. 3

The Bulletin is published bi-monthly by the Indiana University, from the University office, Bloomington, Indiana.

Entered July 23, 1903, at Bloomington, Indiana, as second-class matter, under act of Congress of July 16, 1894.

Prefatory Note

In the following pages is found such information regarding the Indiana University School of Medicine, the requirements for admission, enrollment, course of study, degrees, fees, advanced standing, etc., as is of importance to a student expecting to enter on a course in medicine. This is followed by a description of the various courses given, with a few paragraphs on the equipment of the several departments. The whole is preceded by a sketch of the development of medical schools in the United States.

For further information, address the Secretary of Indiana University Medical School.

Medical Schools in the United States

THE EARLIEST MEDICAL SCHOOLS

University Schools. The first medical schools in the United States were organized in connection with universities. The oldest in America is that of the University of Pennsylvania, founded in 1765. This was followed, three years later, by the organization of the medical school of Kings College, now the College of Physicians and Surgeons of the University of New York. In 1783 the Harvard Medical School began its long and honorable career, while in 1798 the authorities of Dartmouth College established a medical department.

Modest Beginnings. In all of these schools the beginnings were very modest. In the medical department of Dartmouth College Dr. Nathan Smith was for many years the only professor. For twelve years he gave lectures on the different branches of medicine, assisted in only two courses in the department of chemistry.

Chairs First Established. In these schools the chairs first established were those of anatomy and surgery, medicine, and chemistry and materia medica. From time to time other subjects, pharmacy, physiology, obstetrics, gynecology, medical jurisprudence and pathology were added to the curriculum.

PROPRIETARY SCHOOLS

A Single Course of Lectures. The majority of medical schools in America, however, originated as private, i. e., proprietary schools. The instruction consisted at first of a single course of lectures in each of the various subjects taught. Each course was repeated from year to year, so that if a man returned for a second year he heard a repetition of the first year's lectures.

THE GRADED COURSE

The introduction of the graded course in medicine, in 1859, by the Chicago Medical College, now the medical department of Northwestern University, was, accordingly, a distinct step in advance. By this arrangement a sequence in courses was established. A definite number of subjects was assigned to each year, in such natural order that by the mastery of one group the mastery of the next was made easier, and a more comprehensive grasp of the whole was gained.

INCREASE IN LENGTH OF COURSE

Increase in Length of Years. To the same university is due the credit of adoption of longer annual courses of medical college instruction. In the early history of medicine in the United States, the time devoted to the various subjects taught, and to the entire course, was very brief. The course in anatomy consisted of about sixty lectures, with demonstrations. The course in medicine consisted of about fifty lectures. All the lectures of the entire medical course were given in

om twelve]to sixteen weeks. Gradually this time was increased, until n most schools the year was six months long. In the leading medical schools the year is now eight months to nine months in length.

Increase in Number of Years. Instead of a single course of lectures, the work of the medical course of to-day in America covers a period of four years. In Germany the time required is five years, and after 1906 a sixth year, devoted to hospital work, will be required.

Cause of Increase. This very great increase in the amount of time devoted to the study of medicine has been necessitated in part by the addition of new subjects, chief among which is bacteriology, and in part by the tremendous increase in medical knowledge during the past half-century.

INCREASE IN ENTRANCE REQUIREMENTS

By the Association of American Medical Colleges. Though the time spent in the study of medicine was gradually lengthened, it has been only in the most recent years that any considerable requirement, other than that of good moral character, has been demanded for entrance on the study of medicine. The minimum requirement for admission to be maintained by colleges belonging to the Association of American Medical Colleges, is a high-school certificate. After July 1, 1905, a diploma from a four-year high school, or an equivalent education, will be required. Sixty-nine of the 154 medical schools of the United States meet the present entrance requirements of the Association of American Medical Colleges, and are members of that association.

By Several States. "In five or more states the medical examining boards have increased the entrance demands to a degree which excludes graduates of schools which admit students on the minimum requirements of the Association of American Medical Colleges."*

By Universities. Furthermore, Johns Hopkins, Harvard, Western Reserve, Columbia, Ann Arbor and Chicago demand from one to four years of collegiate work for entrance to their medical departments. Thus, both within and without the Association of American Medical Colleges is found a decided sentiment in favor of still further increasing the minimum requirement for admission to medical schools.

*To What Extent and How Rapidly Shall Our Standards of Admission to Medical Schools be Advanced.—Journal of Amer. Med. Asso., Aug. 15, 1903, page 463.

CHANGE IN CHARACTER OF INSTRUCTION

Laboratory Teaching. During the past twenty years the character of the instruction in the better medical schools has greatly changed. Extensive laboratories with expensive equipment have been found necessary. The cost of medical instruction particularly in the first two years has greatly increased until in the best schools it considerably exceeds the income derived from fees from students.

Increase in Instructing Force. "With the more progressive schools the most important item is the increase in the instructional force, and the change in the character of the faculty. Under the purely didactic plan of teaching which prevailed up to fifteen or twenty years ago, one instructor in each branch sufficed for the whole student body whether it numbered 50 or 500 students. A faculty numbering 20 or 30 was a large one for those days, though not a few schools had an annual attendance of five or six hundred students. Only one member of the faculty, the professor of chemistry, devoted his whole time to teaching and had, therefore, to be paid a salary, and in the majority of colleges the occupant of even this chair was a general practitioner, who taught without pay. The introduction of laboratory methods made such an arrangement impossible. A didactic lecture in anatomy or chemistry may be about as advantageously delivered to 500 as to 30, but the adequate supervision of their work in the dissecting room or in a laboratory of chemistry, physiology or bacteriology demands an instructor for every 20 or 30 students at the most."*

As a result of this great increase in the cost of instruction many medical schools formed affiliations with endowed universities. Instead of four, as at the beginning of last century, there are now about thirty universities giving two or four years of the medical course.†

Pseudo-University Schools. These schools are classified by Barker as Pseudo-University Schools and Semi-University Schools. Under the former term are grouped those schools which have secured university affiliation without undergoing any marked change in the character of instruction offered.

*Journal of Amer. Med. Asso., Aug. 15, 1903, page 427.

†These are the Universities of Arkansas, Southern California, California, Colorado, Yale, Columbia, Georgetown, Howard, National, Illinois, Northwestern, Chicago, Iowa, Kansas, Johns Hopkins, Michigan, Minnesota, Missouri, Nebraska, Syracuse, North Carolina, Western Reserve, Oregon, Virginia, Cornell, Pennsylvania, Harvard, Wisconsin, Indiana, Nebraska and Dartmouth College.

Semi-University Schools. By Semi-University Schools is meant "schools in which the subjects of the first two years are taught in the university by university professors who do not engage in the private practice of medicine, but who give their whole time to the teaching and investigation of the sciences which they represent. The laboratories of anatomy, physiology, etc., are installed in the same way as are the laboratories of physics, chemistry and biology."

SEPARATION OF THE PURELY SCIENTIFIC FROM THE CLINICAL YEARS

Separation in Curriculum. An essential part of this change in the character of instruction has been the separation of the purely scientific from the clinical years.

In many of these institutions, Johns Hopkins, Cornell, University of Michigan, University of Chicago, Western Reserve University, and others, the clinical work is postponed to the third and fourth years. The experience of these medical colleges has shown that the first two years of a medical course, the two years in which the more strictly scientific subjects are studied, can best be given apart from the distractions of the so-called "clinical atmosphere." Moreover, in Germany no student is permitted to attend clinics who has not completed his work in Anatomy, Physiology, Chemistry, Zoölogy, Botany and Physics—i. e., the work of the first two years of medicine in Germany.

Separation in Location. The work of the first two years in some instances is separated from the clinical years not merely by the character of instruction but by a considerable distance, thus the more completely cutting off the purely scientific years from the so-called "clinical atmosphere."

The first two years of medicine in Rush Medical School, the medical department of Chicago University, are given on the University campus, while the work of the last two years, the clinical years, is given across town seven miles away.

Separation No Disadvantage. The first two years of the Cornell University Medical College are given at Ithaca, N. Y., while all four years are given in New York city, two hundred and fifty miles distant. Students taking the first two years of medicine at Ithaca, a city of about 10,000 inhabitants, find themselves at no disadvantage whatever during

their clinical years in New York city as is clearly shown by the fact that a very high percentage of the men who have gotten their first two years in a university atmosphere, win hospital appointments.

UNIVERSITY MEDICAL SCHOOLS OFFERING ONLY THE FIRST TWO YEARS' WORK

As a result of the tendency of endowed institutions to offer instruction in the first two years of medicine, and following the example above noted of German and leading American medical schools in giving the first two years of medicine entirely apart from clinics, the University of Mississippi, the University of Kansas and the University of Wisconsin, have organized medical schools giving only the first two years of the four years' work of the medical curriculum and not graduating students. Of these schools, that of the University of Kansas has been established long enough to thoroughly demonstrate the practicability of the plan.

COMBINED ARTS AND MEDICAL COURSES

Of the semi-university schools, some few, Cornell, Western Reserve, University of Michigan, and University of Chicago and others, have offered a combined course in Arts and Medicine.

Seven Year Combined Course. Cornell and Western Reserve represent one class, in which the work of the Arts and Medical courses has been so arranged that the student may complete both in seven instead of eight years.

Six Year Combined Course. The University of Michigan and University of Chicago are representatives of the six year combination course. In these universities nearly all the subjects of the first two years in medicine are elective for all University students. A student in the Arts department, candidate for the A. B. degree, may, therefore, elect all of the first two years of medicine while registered for the degree A. B., and by registering at the same time in the School of Medicine of the University credit is granted there also.

Object of Combined Course. The whole purpose of this double registration and of the combination course is to strengthen the preparation for professional work without unduly prolonging the period of study.

Six Year Combined Course More Popular. Of the two plans the latter is the more popular and corresponds most nearly to the requirements demanded by German universities for entrance on the study of medicine.

INDIANA UNIVERSITY MEDICAL SCHOOL

Its Organization. In recognition of the tendency in modern medical education as outlined above, Indiana University, in the fall of 1903, established a medical school, to be known as the Indiana University School of Medicine.

Plan of Organization. Only the first two years in medicine are given, and these may be taken as electives by candidates for the A.B. degree. Two years of collegiate work are required for entrance.

The organization is on the plan of the six year combination course, and differs from it only in that the University does not at present provide for the last two years of medicine, but fits students to enter the third year in the better medical schools.

In organizing a medical school of this character, Indiana University established no precedent, instituted no innovation.

Demand for Such a School. Attracted by the superior character of the instruction in the first two years of the medical course in the semi university schools, a large and increasing number of our ablest young men have been going beyond the borders of the State to secure this desirable medical education.

The provision to meet this need was a logical necessity for a State University in a great State within whose borders no such provision for the first two years of medicine had been made.

Term Calendar for 1904-1905

The Fall term begins Tuesday, September 20, 1904.
Thanksgiving recess, November 24 and 25.
The Fall term ends Wednesday, December 21.
The Winter term begins Tuesday, January 3, 1905.
Foundation day, Friday, January 20.
The Winter term ends Friday, March 24.
The Spring term begins Tuesday, April 4.
Decoration day, a holiday, Tuesday, May 30.
The Spring term ends Friday, June 16.
Commencement day, June 21.
The Summer term begins Thursday, June 22.

Board of Trustees

OFFICERS

ISAAC JENKINSON, *President*.
JOHN W. CRAVENS, *Secretary*.
WALTER E. WOODBURN, *Treasurer*.
WILLIAM T. HICKS, *Financial Agent*.

MEMBERS

NAT U. HILL, Bloomington, term expires 1905.
*JOSEPH H. SHEA, Seymour, term expires 1907.
BENJAMIN F. SHIVELY, South Bend, term expires 1905.
ROBERT I. HAMILTON, Huntington, term expires 1905.
*JAMES W. FESLER, Indianapolis, term expires 1905.
ISAAC JENKINSON, Richmond, term expires 1906.
THEODORE F. ROSE, Muncie, term expires 1906.
*EDWIN CORR, Bloomington, term expires 1906.

*Elected by the Alumni of the University.

Indiana University School of Medicine

FACULTY

WILLIAM LOWE BRYAN, President.

A.B., Indiana University, 1884; A.M., 1886; Ph.D., Clark University, 1892. Student, University of Berlin, 1886-87; Clark University (Fellow), 1891-92; studied in France, Germany, Italy, and Switzerland, 1900-1901. Instructor in Greek, Indiana University, January to June, 1885; Associate Professor of Philosophy, 1885-87; Professor of Philosophy, 1887-1902; Vice-President of Indiana University, 1893-1902; President of Indiana University, from 1902.

CARL H EIGENMANN, Professor of Zoölogy, and Director of the Biological Station.

A.B., Indiana University, 1886; A.M., 1887; Ph.D., 1889. Graduate student, Harvard University, 1887-88; San Diego Biological Laboratory, 1889; Woods Hole Marine Station, 1889, 1890, 1894, and 1900; California Academy of Sciences, 1890; summer explorations for the British Museum in California, Oregon, Idaho, Montana, Dakota, and Western Canada, 1890, 1891, and 1892. Professor of Zoölogy, Indiana University, from 1891; Director of Biological Station, from 1895.

ROBERT EDWARD LYONS, Professor of Chemistry.

A.B., Indiana University, 1889; A.M., 1890; Ph.D., University of Heidelberg, 1894. Student, Fresenius's Laboratories (Wiesbaden), Universities of Heidelberg, Munich, and Berlin, and Joergensen's Institute for Physiology of Fermentations (Copenhagen), 1892-95. Instructor in Chemistry, Indiana University, 1889-91; Associate Professor of Chemistry, 1891-92; Private Assistant to Professor Krafft, University of Heidelberg, 1895; Director of the Biological Station, Indiana University, in 1900; Professor of Chemistry, Central College of Physicians and Surgeons, Indianapolis, from 1903; Professor of Chemistry, Indiana University, from 1895.

ERNEST HIRAM LINDLEY, Professor of Philosophy and Psychology.

A. B., Indiana University, 1893; A.M., 1894; Ph.D., Clark University, 1897. Student, Clark University (Fellow), 1895-97; Universities of Jena, Leipsic, and Heidelberg, 1897-98. Instructor in Philosophy, Indiana University, 1893-98; Instructor in Summer School, Clark University, 1896; Lecturer in Summer School, Clark University, 1899 and 1901; Associate Professor of Psychology, Indiana University, 1898-1902; Professor of Philosophy and Psychology, from 1902.

LOUIS SHERMAN DAVIS, Associate Professor of Chemistry.

A.B., Indiana University, 1891; A.M., 1892; Ph.D., University of Marburg, 1896. Student, University of Marburg, 1895-96. Instructor in Chemistry, Indiana University, 1892-95; Associate Professor of Chemistry, from 1895.

BURTON DORR MYERS, Associate Professor of Anatomy.

A.B., Buchtel College, 1893; A.M., Cornell University, 1900; M.D., University of Leipsic, 1902. Graduate student and student of Medicine, Cornell University, 1897-1900; student, University of Leipsic, 1900-1902. Superintendent of High School, Greenwich, Ohio, 1893-97. Assistant in the Department of Physiology, Cornell University, 1898-1900; Assistant in Anatomy, Johns Hopkins University, 1902-03; Instructor in Anatomy, Johns Hopkins University, 1903; Associate Professor of Anatomy, Indiana University, from 1903.

WILLIAM J. MOENKHAUS, Associate Professor of Physiology.

A.B., Indiana University, 1894; A.M., 1895; Ph.D., University of Chicago, 1903. Graduate student, Harvard University, 1895-97; University of Chicago (Fellow, 1900-1901), 1899-1901. Instructor in Zoölogy, Indiana University, 1894-1901; Assistant Director of Museum, Sao Paulo, Brazil, 1897-98; Instructor in Embryology, Williams College, 1899; Assistant Professor of Zoölogy, Indiana University, 1901-1904; Associate Professor of Physiology from 1904.

AUGUSTUS GROTE POHLMAN, Assistant Professor of Anatomy.

M. D., University of Buffalo, Medical School. Student Assistant in Histology, Buffalo Medical School, 1896-97; Student Assistant in Anatomy, Buffalo Medical School, 1897-98; Assistant in Anatomy, Cornell University, 1900-01; Instructor in Anatomy, Cornell University, 1901-03; student in University of Freiberg, 1901-03, on leave of absence from Cornell University; Assistant in Anatomy, Johns Hopkins University Medical School, 1903-04; Instructor in Anatomy, Johns Hopkins University Medical School, 1904; Assistant Professor of Anatomy, Indiana University, from 1904.

CLAUDE ELMER PRICE, Assistant in Neurology.

A.B., Indiana University, 1903; A.M. Indiana University, 1904. Assistant in Neurology from 1903.

BAYARD FRANKLIN FLOYD, Assistant in Anatomy.

Assistant in Anatomy from 1903.

DENNIS EMERSON JACKSON, Assistant in Physiology.

Indiana University School of Medicine

For some years past, graduates of Indiana University who had majored in Zoölogy or Chemistry, have received more than a year's credit at some of the best medical schools. In the fall of 1903 the demand for work credited on a medical course became so great that a School of Medicine was organized, to be known as the Indiana University School of Medicine. At the present time all of the more strictly scientific subjects, which belong properly to the first two years of the regular four years' medical course and serve as a basis for the technical and clinical studies which follow, are being given. The year in the Indiana University School of Medicine is nine months long.

The equipment for all of the work given is very complete and in the library of the School of Medicine are found not only the scientific publications and journals of the various departments, but also the leading medical journals.

REQUIREMENTS FOR ADMISSION

Students are admitted to the Medical School on fulfilling the regular requirements for admission to the University and completing two years of collegiate work, most of which is prescribed. Entrance to the University may be obtained either by certificate from a commissioned high school or by examination.

Admission to the University from Commissioned High Schools. The State University is an integral part of the public school system of Indiana. The public high schools, which provide instruction for pupils in the ninth, tenth, eleventh and twelfth years of school life, stand in the system next below the University, the work of the latter beginning where that of the secondary school closes. From time to time the high schools of the State are examined by the State Board of Education, and to those that reach the required standard a commission is granted which recognizes them as preparatory schools to the University. A certificate of satisfactory work done in any one of these commissioned high schools

entitles the student to entrance credit in the subjects covered. If the certificate shows that his high school work has included all that is required in the outline given below he is admitted to full college standing without any entrance examination. Until such certificate is filed with the Dean no credit for entrance work can be placed upon the records of the University. Blanks for this certificate may be obtained from the Registrar.

Outline of Entrance Work. The work required for admission to the University includes the common branches and the subjects of a high school course. The common branches include reading, writing, spelling, grammar, arithmetic, geography, physical geography, United States history and elementary physiology. These subjects are taught in the public schools in the grades below the high school. Graduation from a commissioned high school presupposes this work, and such graduates are exempt from examination in the common branches as well as in the high school work. From those who are not graduates of a commissioned high school, a common school diploma or a license to teach in the public schools will be accepted instead of an examination in the common branches.

The high-school course on which the entrance requirements of the University are based, consists of the work of four years of at least eight months each. A year's work of daily recitations in one subject is taken as a unit of measurement. Four such units, or their equivalent, constitute the total work of a year, and sixteen such units of work make up the four years' high-school course. This work is divided into prescribed and elective subjects, as follows:

A. Prescribed subjects, 11 units, distributed as follows:

1. English, 3 years (3 units).
2. Mathematics, 3 years (3 units).
3. Foreign Language, 3 years (3 units).
4. History, 1 year (1 unit).
5. Science, 1 year (1 unit).

B. Elective subjects, 5 units.

For a detailed description of the work outlined above, refer to the University Catalogue (Indiana University Bulletin for May, 1904).

Inasmuch as a reading knowledge of German and French is necessary for entrance upon the medical work, it is recommended that students preparing for the study of medicine present two years of German as a part of their entrance requirements.

The two years of collegiate work required for admission to the Indiana University School of Medicine are as follows:

FIRST YEAR

<i>Fall Term</i>		<i>Winter Term</i>		<i>Spring Term</i>	
English	2 hrs.	English	4 hrs.	English	4 hrs.
German	5 hrs.	German	5 hrs.	German	5 hrs.
Physics.....	3 hrs	Physics.....	3 hrs.	Physics.....	3 hrs.
Trigonometry..	5 hrs.	Elective.....	3 hrs.	Elective.....	3 hrs.

SECOND YEAR

Zoölogy	5 hrs.	Zoölogy	5 hrs.	Botany	5 hrs.
French.....	3 hrs.	French.....	3 hrs.	French	3 hrs.
Gen'l Chemistry	5 hrs	Qualitative		Qualitative	
Hypnotism and		Analysis.....	5 hrs.	Analysis.....	5 hrs.
Suggestion... 3 hrs.		E'ective.....	2 hrs.	Elective.....	2 hrs.

This work consists in part of subjects prescribed for all candidates for the bachelor's degree, and in part of a number of courses which are more directly preparatory for the work in the School of Medicine.

OUTLINE OF THE COURSE IN THE SCHOOL OF MEDICINE

The following brief outline shows the extent of the instruction given in the several branches, and indicates the order in which the different courses are taken :

<i>Fall Term</i>	FIRST YEAR	Hours
Human Anatomy (Course 1, 2 or 3*).....		5
Osteology (Anatomy 4)		3
Arthrology (Anatomy 5).....		2
Organic Chemistry (Course 38).....		5

*The order in which Courses 1, 2 and 3 in Anatomy are taken, is determined by the assignment of parts for dissection.

<i>Winter Term</i>	Hours
Human Anatomy (Course 1, 2 or 3*).....	5
Digestive and Respiratory System (Anatomy 6).....	3
Organs of Sense (Anatomy 7)	2
Physiological Chemistry (Course 8).....	5
<i>Spring Term</i>	
Histology and Cytology (Anatomy 8).....	10
Physiological Chemistry (Course 9)	5

SECOND YEAR

<i>Fall Term</i>	
Embryology	5
Physiology (Course 4)	3
Experimental Physiology (Course 5).....	2
Toxicology (Chemistry 13)	3
Neurology (Course 4b)	2
<i>Winter Term</i>	
Human Anatomy (Course 1, 2 or 3)	5
Physiology (Course 4).....	3
Experimental Physiology (Course 5).....	2
Bacteriology (Chemistry 16a and 16b).....	5
Neurology (Course 4b).....	2
<i>Spring Term</i>	
Surgical Anatomy (Course 9)	5
Physiology (Course 4).....	3
Experimental Physiology (Course 5).....	2
Bacteriology (Chemistry 16a and 16b).....	5

DEGREES

All the subjects taught in the Indiana University School of Medicine are open as electives, under certain conditions, to all students of the University. Students in the Arts Department, candidates for the degree A.B., who intend also to study medicine, may, therefore, shorten their total period of study by two years if they comply with the conditions by which registration in both Departments at the same time

*The order in which Courses 1, 2 and 3 in Anatomy are taken, is determined by the assignment of parts for dissection.

is permitted, and elect medical subjects during the last two years of their residence.

By this arrangement, students may be graduated at the end of four years from the time of registration in the University with the degree of Bachelor of Arts, and be eligible to enter the third year in medical colleges of high standing, and on the completion of two years of clinical medicine take the degree of Doctor of Medicine. This degree should be taken six years from the time of registration in the University and four years from the time of registration in the University School of Medicine.

ENROLLMENT

Students who desire to register in the Indiana University School of Medicine will secure their registration cards at Room 59, Science Hall. By presenting this at the office of the Registrar they will be given their enrollment card. Matriculates in the School of Medicine who desire to become candidates for the degree A.B. must register also in the Arts Department of Indiana University at the office of the Registrar.

LABORATORY FEES

A charge is made for material used in all laboratories. The laboratory fee is two dollars per term in all Departments except Anatomy and Chemistry. In Anatomy the fee is five dollars per part. In Chemistry it is five dollars per term for Course 17, four dollars for Courses 3 and 9, and two dollars for Courses 10, 11, and 12.

ADVANCED STANDING

Students who come from other educational institutions must present letters of honorable dismissal from those institutions and must meet the entrance requirements of the School of Medicine as described above. If such students are candidates for advanced standing in the School of Medicine, they must present full credentials for both preparatory and medical work. The credentials should state the time during which the candidate was a student in the institution which issues them, the subjects which he studied there, and the credit which he received in each subject. They should also give some reliable means for estimating the value of such credit, as, the amount of such credit representing a

full year's work in the institution, or the amount required for graduation from the four years' college course; for example, in Indiana University credit is reported in hours, 45 hours representing a year's work and 180 hours being required for graduation. The credentials must also distinguish clearly between credit given for work done in the institution which issues them and credit allowed for work done elsewhere. If the credentials are satisfactory to the Committee on Admission, the candidate will be given, without examination, a corresponding amount of credit upon the records of the School of Medicine.

Students who can not furnish acceptable certificates for work done elsewhere will receive advanced standing only upon examination.

Students should not expect to receive the same standing in the School of Medicine as they have had in the school from which they come, unless they can show that besides the work for which they have received their medical credit they have met in full the entrance requirements of this School of Medicine.

Courses of Study in the School of Medicine

The following is a detailed description of the courses, methods and facilities for instruction in the several departments of the School of Medicine.

ANATOMY

BURTON D. MYERS, Associate Professor.

AUGUSTUS G. POHLMAN, Assistant Professor.

BAYARD F. FLOYD, Assistant.

The equipment, which is entirely adequate for the number of students in attendance, is similar to that of the best medical schools. The study room collection will, when completed, contain models, longitudinal and transverse sections of the body, dissections of every portion of the body to show superficial and deep structures, to all of which the student may have access at any time for aid in his work. Much of this material is already in hand. The dissecting room is a large, airy, well lighted room with a floor surface 70 by 30 feet. The floor has been specially prepared so that the greatest cleanliness may be maintained. All the material used for dissection is most carefully prepared by an arterial injection of equal parts of alcohol, glycerine and carbolic acid. Cadavers thus injected remain in perfect condition for years.

As a text in anatomy, Cunningham is used almost exclusively. Furthermore, each student should have Spalteholz's or Toldt's Atlas.

The library of the department includes all the leading periodicals and books of reference.

Each student must dissect completely three parts, i.e., one lateral half of the body. But one student is assigned to a part, i.e., six students to a body. If a part is not satisfactorily dissected it will be removed from the laboratory, and the work must be repeated on another part, to which the student will be assigned and for which the regular fee will be charged.

The equipment of the Department includes every facility for the the course in histology. In addition to the usual paraffin and celloidin microtomes, the freezing microtome is found of great value in the study of fresh tissues. With this microtome sections 20μ to 50μ thick of perfectly fresh tissue, can be made in a few minutes, stained with methy-



ANATOMICAL LABORATORY.

This large room, over seventy feet long, is excellently lighted, not only from the ends, but by five large double windows at the side. It will accommodate sixty students without the least crowding. To the right is seen a bank of lockers. Farther down the laboratory is a cabinet for models and demonstration material. At the end of the room are two zinc top dissecting tables about which stools, book racks, etc., are seen. This room is used for dissection during the fall and winter terms. In the spring term it is used for the course in Histology.

lene blue and studied with low and high power. Familiarization with this method is important, as this quick means of securing a thin section can be made use of in the surgical clinic in establishing the diagnosis of a benign or malignant tumor.

In so far as it is of importance, human tissues are studied. Where other vertebrates better illustrate the fundamental structure of an organ, they are made use of.

In the fixation of tissues for study, the injection method is used wherever possible, as the fixation thus secured is very superior.

The equipment furnished the student for this work is excellent. Each student is supplied with a microscope and given daily drill in the recognition of tissues and tissue elements.

All courses, except Course 9, are open to all students. Courses 1, 2, and 3 are to be taken in the order designated by the instructor in charge. One of them will usually be postponed until the second year.

1. **Human Anatomy: Dissection of Arm.** Each student makes a complete dissection of all the structures of the arm. The dissection is made with reference to text-books and atlases as guides, and is accompanied by daily quizzes in the laboratory at the cadaver. Associate Professor MYERS, and Assistant Professor POHLMAN.

Fall term, daily, 8:00 to 12:00. Repeated in the Winter term.

Courses 1, 2, and 3 are to be taken in the order designated by the instructor in charge.

2. **Human Anatomy: Dissection of Leg.** This course is conducted in the same manner as Course 1. Associate Professor MYERS, and Assistant Professor POHLMAN.

Fall term, daily, 8:00 to 12:00. Repeated in the Winter term.

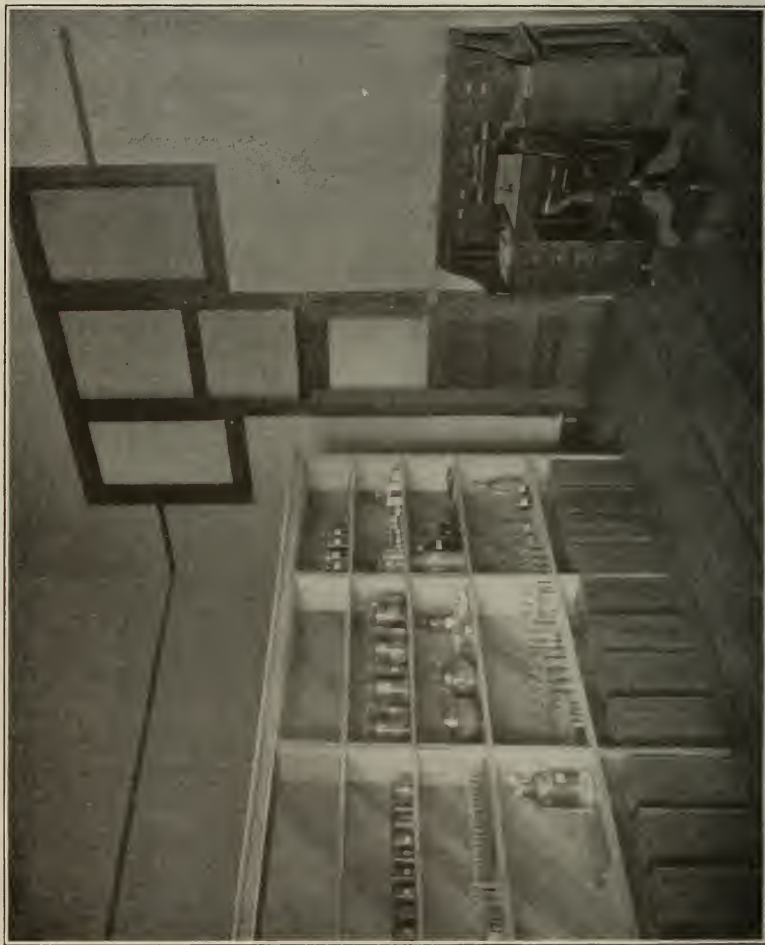
Courses 1, 2, and 3 are to be taken in the order designated by the instructor in charge.

3. **Human Anatomy: Dissection of Head, Neck, and Spinal Column.** This course is conducted in the same manner as Course 1. Associate Professor MYERS, and Assistant Professor POHLMAN.

Fall term, daily, 8:00 to 12:00. Repeated in the Winter term.

Courses 1, 2, and 3 are to be taken in the order designated by the instructor in charge.

4. **Human Osteology.** A systematic study of the human skeleton is made. The bones are drawn or modeled in composite clay. A



PRIVATE LABORATORY—DEPARTMENT OF ANATOMY.

This room is used as a private laboratory and also as a preparation room for the course in Histology. Beneath the shelves are a lot of boxes, each containing half a skeleton. These are loaned to the students for the study of Osteology.

complete disarticulated skeleton is furnished to two students working together. In the laboratory the student has access to articulated skeletons, disarticulated skulls, and special dissections. Composite bones are studied from the standpoint of embryology and comparative anatomy. Associate Professor MYERS, and Assistant Professor POHLMAN.

Fall term, M. W. F., at 8:00.

5. Human Arthrology. A set of the best models of the various joints and ligaments has been secured, and proves a great aid in the study of arthrology. The course is given in connection with Courses 1, 2, and 3, and with the further aid of special dissections. Associate Professor MYERS, and Assistant Professor POHLMAN.

Fall term, T. Th., at 8:00.

6. Digestive and Respiratory Systems. A dissection of the digestive and respiratory systems is made. The subjects are treated from a comparative and embryological point of view. Associate Professor MYERS, and Assistant Professor POHLMAN.

Winter term, M. W. F., at 8:00.

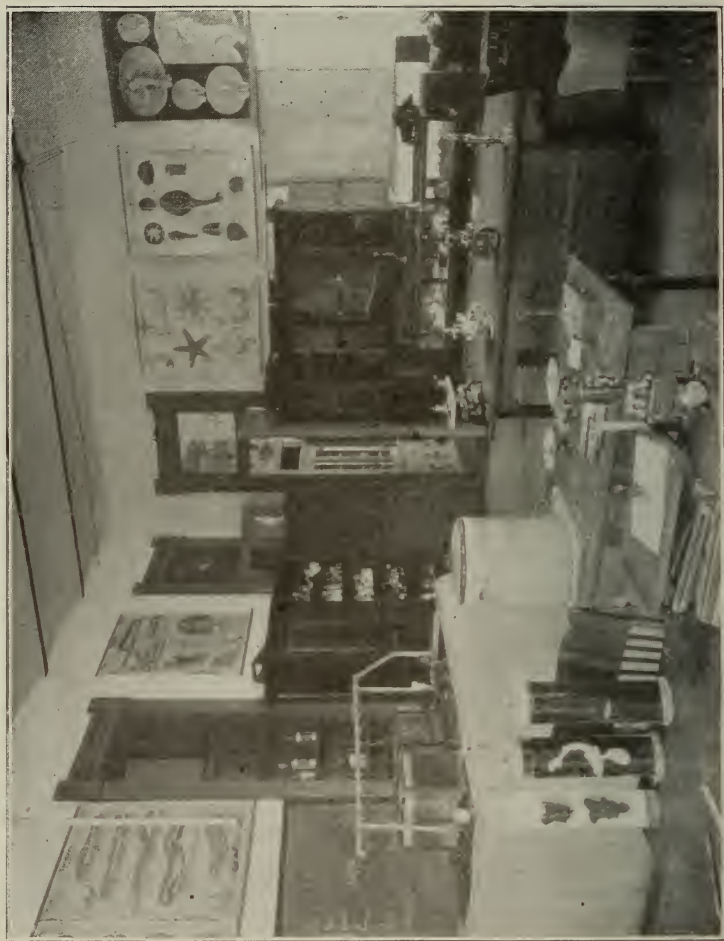
7. Organs of Sense. Anatomy of the eye, ear, and nose. This course will be given by dissections and demonstrations of models. Associate Professor MYERS, and Assistant Professor POHLMAN.

Winter term, T. Th., at 8:00.

8. Histology and Cytology. In this course the student will undertake a study of the various tissues and organs of the body. A knowledge of the normal appearance and texture of tissues and organs will be gained by dissecting fresh specimens under the dissecting microscope. The tissues will be studied fresh, in free hand or frozen sections, and fixed by injection of various fixing agents. Students not owning a compound microscope will be furnished one for a small fee. Double course, ten hours credit. Associate Professor MYERS.

Spring term daily, at hours to be appointed.

Open to students who have passed in Course 7.



A CORNER IN THE EMBRYOLOGICAL LABORATORY.

9. **Surface and Surgical Anatomy.** This course will be given in part after the manner of the German "Anatomie am Lebenden," and in part by demonstrations and special dissections. Assistant Professor POHLMAN.
Spring term, daily, 9:00.
10. **Histological Technique.** In this course the student will be given an opportunity to use various fixing agents and to become familiar with the ordinary methods of fixing, hardening, imbedding and cutting tissues. Associate Professor MYERS.
Spring term, T. Th.
11. **Splanchnology.** A knowledge of the natural form, size and position of the thoracic and abdominal viscera will be demonstrated in a cadaver preserved by injection of formalin. The knowledge thus gained will be supplemented by a study of transverse sections of a body fixed by formalin injection. In such transactions the relation of blood vessels, nerves and various structures are studied with great advantage. Associate Professor MYERS, and Assistant Professor POHLMAN.
Fall and Winter terms, M. W. F., at an hour to be appointed.
12. **Hæmology.** In this course instruction will be given in the various methods of examining the blood, in the use of the various differential stains for granulations, and in the making of differential counts of the granular and the non-granular colorless cells. Associate Professor MYERS.
Fall term, T. Th., at an hour to be appointed. Repeated in Winter and in Spring Term.
13. **Research Work.** Opportunity for research work will be offered to advanced students who may have at least one-half their time for one year free for the work. Associate Professor MYERS.
Fall, Winter, and Spring terms, at hours to be appointed.



LABORATORY FOR PHYSIOLOGY.

PHYSIOLOGY

WILLIAM J. MOENKHAUS, Associate Professor.
DENNIS E. JACKSON, Assistant.

The Department of Physiology is prepared to offer three courses the coming year for students in Medicine. These are outlined below. Courses 4 and 5 are continuous courses and are required of all candidates in Medicine. Students who have had the equivalent of the didactic work (Course 4) may take the laboratory work (Course 5) and be passed on the required work in Physiology. In Course 6 an opportunity will be given to follow some restricted phase of mammalian or of general physiology in much greater detail than was possible in the preparatory courses.

The Department is providing a well-equipped laboratory for experimental work in Physiology. It is supplied with manikin and other models and charts; kymographs, inductoria, sphygmographs, cardiographs, plethysmographs, stethoscopes, manometers, tambours, haemometers, haemocytometers, perimeters, ophthalmoscopes, artificial eyes and other instruments for the performance of the important experiments in Physiology and for special work. About a dozen of the more important English, German and French physiological journals are taken by the Department and it possesses many of the standard works in Physiology.

In the instruction much stress is laid on the experimental work. In addition to the demonstrations in the class room each student spends from five to six hours each week throughout the year in laboratory work. To this end a sufficient number of sets of apparatus are provided so that each student may perform for himself most of the classical experiments.

4. Human Physiology. Lectures, recitations and reports. The topics are taken up in the following order: (a) Fall term—Blood, Lymph, Circulation, Respiration. (b) Winter term—Digestion, Absorption, Metabolism, Excretion, Muscle and Nerve. (c) Spring term—Central Nervous System and the Sense Organs. The laboratory work of Course 5 is a necessary accompaniment of this course. The lectures and recitations are discussions and elaborations of the laboratory work and of the text-book work and collateral reading. At least once each term each member of the class prepares a report on some topic



MAIN ROOM OF NEUROLOGICAL LABORATORY.

the material for which is gathered from the original sources. These reports are read in the class. Associate Professor MOENKHAUS.

Fall, Winter, and Spring terms. M. W. F. at 1:00.

Required of all students in medicine. Cannot be taken apart from Course 5.

5. An experimental course. Experiments on blood, circulation, respiration, absorption, heat, muscle, and nerve, central nervous system and the special senses. The student is required to perform for himself the important experiments on the above topics. A complete and accurate record of all the experiments is kept. The students work in groups of two. Associate Professor MOENKHAUS.

Fall, Winter, and Spring terms. T. and Th. from 1:00 to 4:50.

Selected experiments from Stewart, Stirling, Beddard, Hall, Porter, and others.

Required of all students in medicine. Open as a separate course to those having a sufficient knowledge of physiology.

6. Advanced Physiology. A comprehensive experimental study of some restricted phase of mammalian physiology or of general physiology.

Laboratory work and assigned reading. Associate Professor MOENKHAUS.

Fall, Winter, and Spring terms. Hours to be arranged.

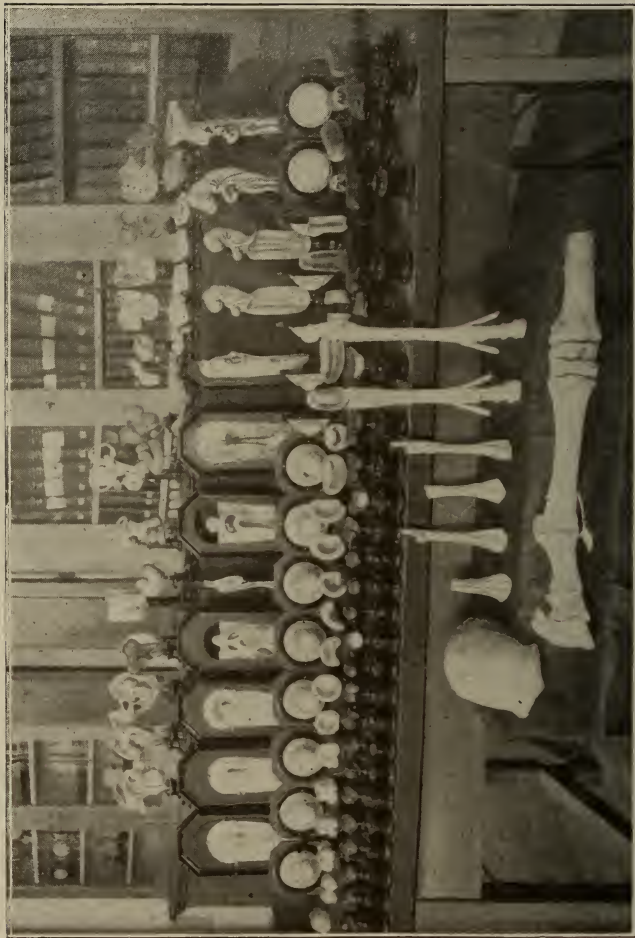
Open to those having the equivalent of Courses 4 and 5.

NEUROLOGY

ERNEST H. LINDLEY, Professor.

CLAUDE E. PRICE, Assistant.

For the study of neurology the School of Medicine possesses a well-equipped laboratory. This includes a large number of charts, a series of models of the nervous system, including Auzoux models of the brain, eye, ear; Ziegler models of the embryology of the human brain; an excellent series of sections of the human brain from the cervical cord to cephalad of the anterior commissure; series of animal brains; dissecting outfits, microtomes, microscopes and other appliances necessary to the study of the structure of the nervous system. A sufficient number of perfectly prepared human brains are in store so that each pair of students will be furnished an entire brain for study and dissection under direction.



MODELS TO ILLUSTRATE LECTURES IN EMBRYOLOGY.

- 4b. Neurology. The anatomy and physiology of the nerve cell; the neurone theory; influence of fatigue products and other poisons upon the nerve cell; the embryology and general plan of the nervous system as a whole; structure and functions of the various groups of cells composing the nervous system; the nerve-muscle machine; reflex action; localization of the functions of the brain; the minute structure of the cerebral cortex; aphasia and other speech defects; the origin and development of the sense organs. The laboratory work constitutes the greater part of the course. It consists of the dissection of human brains and the preparation and microscopic examination of human and animal nerve tissue. Lectures, demonstrations, laboratory work. Professor LINDLEY and Mr. PRICE.

Fall and Winter terms, T. Th., 1:00 to 3:00.

Whitaker, Brain and Spinal Cord; Donaldson, Growth of the Brain; Hardesty, Neurological Technique.

Open to all students who have a sufficient knowledge of anatomy and physiology.

EMBRYOLOGY

CARL H. EIGENMANN, Professor.

The work in Embryology is given in the Department of Zoölogy. The embryological laboratory is a well-lighted room supplied with aquaria, reagent cases, and lockers and microscopes of Zeiss and Bausch & Lomb. There is a Thoma, a Minot's revolving, and a Minot's sliding microtome. The lecture room is provided with a series of Lenckarts charts and numerous charts made especially for the department from time to time. To further assist in demonstrating developmental steps and processes the department has many of Ziegler's wax models, including the series on the vertebrate brain, the development of the amphioxus, of the frog, of the chick and of the trout and those showing the development of the heart, the eye, the ear and the special series of the development of man. Students further have access to the extensive series of microscopic slides demonstrating maturation, segmentation, the history of the sexual organs in *Cymatogaster* and the degeneration of eyes, all of which have been made either to demonstrate special processes or have accumulated in connection with some special researches undertaken by the department.



CHEMISTRY—LECTURE ROOM.

3. Embryology. Study of the early stages of the chick and pig. The course will emphasize the development of the germ layers, and the early stages in the development of the organs of the body, and especially the fetal membranes and attachment of the embryos. Attention will be given to methods of preparing embryos and slides. Professor EIGENMANN.

Winter term, daily, 1:30 to 3:50.

Minot, Laboratory Text Book of Embryology.

Open to students who have passed in Course 1. Required of all candidates for the degree of Bachelor of Arts in Medicine.

CHEMISTRY

ROBERT E. LYONS, Professor.

LOUIS S. DAVIS, Associate Professor.

The Department of Chemistry has general, special, and private laboratories, a library room, a lecture room, balance rooms, an incubator room, a stock room, museum, etc. Special laboratories are provided for organic and physiological chemistry, spectrum analysis, toxicology, food analysis, and bacteriology. The laboratories comprise nine large, well-lighted rooms, equipped with workstands, capable of accommodating one hundred and thirty students. Each room is provided with fume hoods and air registers connected with a ventilating fan for the removal of offensive and poisonous gases. The Department is equipped with the best imported apparatus.

The laboratories and departmental library are open from 8:00 a. m. to 5:00 p. m. There are no classes in the laboratories; each student works independently. A five-hour laboratory course requires ten actual hours of laboratory work per week.

38. Elementary Organic Chemistry. Lectures and recitations for students in medicine. Especial attention is given to those organic substances that are of physiological importance; identity tests for some of the synthetic remedies; work preparatory to Courses 8 and 11. Professor LYONS.

Fall term, daily, at 9:00.

Noyes, Organic Chemistry.

Presupposes Chemistry 1, 3a, and 3b.



LABORATORY FOR ORGANIC AND PHYSIOLOGICAL CHEMISTRY.

8. Physiological Chemistry. Lectures on the chemical constitution of the body, of foods, and of excretions, and on the chemical transformation of matter in the process of nutrition and evolution of force. Professor LYONS.

Winter term, daily, at 1:00.

Presupposes Chemistry 6 or 38.

9. Physiological and Pathological Chemistry. Laboratory work. (a) Qualitative and quantitative examination of milk, muscle, fat, bone, egg, liver, bile, gall, gall-stones, serous fluids, saliva, etc.; isolation and study of the products of salivary, pancreatic, and gastric digestion. (b) The Urine. Chemical and microscopic examination of normal and pathological urine. Practical clinical methods. (c) The Blood. Chemical, spectroscopic, and microscopic analysis. Practical clinical and chemico-legal methods. Professor LYONS.

Spring term, 8:00 to 4:50.

Lyons, Manual (in manuscript); Novy, Physiological Chemistry; Koch and Webster, Laboratory Manual in Physiological Chemistry; Cabot, Chemical Examination of Blood; Reese, Manual of Medical Jurisprudence; Witthaus and Becker, Manual of Medical Jurisprudence; Purdy, Urinalysis.

Presupposes Course 8.

11. Toxicology. Lectures and laboratory work for students in law or medicine. Associate Professor DAVIS.
- Fall term, M. W. F.

BACTERIOLOGY

ROBERT E. LYONS, Professor.

The bacteriological laboratory, located in a large, well-lighted room on the north side of Wylie Hall, is well equipped with modern bacteriological apparatus.

The work tables are covered with alternate squares of black and white enameled plate glass, which makes possible absolute cleanliness and furnishes a choice of background in the observation of cultures.

Each student is supplied with a microscope equipped with two-third, one-sixth and one-twelfth objectives and all apparatus and material necessary for independent work.



LABORATORY FOR BACTERIOLOGY.

- 16a. Bacteriology. Lectures and demonstrations concerning the structure and composition of the bacterial cell; the life history and environment of bacteria; the germ theory of disease, the theories of immunity, the chemical nature of the products of bacterial activity, and technical applications of bacteriology. Professor LYONS.

Winter and Spring terms, T. Th., at 2:00.

- 16b. Bacteriology. Methods of cultivation, isolation, and identification of common non-pathogenic and pathogenic micro-organisms. Inoculation experiments, staining of sections, bacteriological water analysis, testing of antiseptics, sanitary appliances, etc. Laboratory work. Professor LYONS.

Winter and Spring terms, M. W. F., 1:00 to 4:50.

Sternberg, Manual of Bacteriology; Muir and Ritchie, Bacteriology; Novy, Laboratory Work in Bacteriology; Lyons, Manual (in Manuscript); Prescott and Winslow, Water Bacteriology.

14. Seminary. Reports on current literature and special topics. Professor LYONS.

Spring term, M., at 1:00.

Advanced courses in bacteriology and bacteriological chemistry may be elected. See University Catalogue—Chemistry 26 and 29.

Enrollment in the School of Medicine, 1903-'04

Ballard, Charles Anson
Bicknell, George Francis
Blickenstaff, Augustus Jacob
Fuhs, Isador Harlan
Gifford, Hanson Smiley
Heitger, Joseph Daniel
Keemer, Edgar Burnett
King, Abraham Joseph
McKay, Sophia Augusta
McClintick, Brown Shirk
McMullen, Edwin Clare
Rinne, John Isaac
Sieber, Edward LeRoy
Smiley, James Harvey
Smiley, Orvall
Smith, Roscoe Willeman
Thomas, Albert Agnew
Zehr, Noah

Logansport
Gosport
Idaville
Mount Vernon
Tipton
Bedford
Kingston
Bloomington
New Albany
Peru
Aurora
Seymour
Camden
Sparta, Ill.
Bloomington
Indianapolis
Linton
Berne

UNIVERSITY OF ILLINOIS-URBANA



3 0112 111883945